



Flight Opportunities

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Enjoy!

The Flight Opportunities team

Recent Flights



Raven Aerostar's high-altitude balloon is inflated the morning of its March 12, 2021 flight to test NASA's V-R3x technology in Baltic, South Dakota – an effort made possible by the Agency's new PACE initiative. Credit: Raven Aerostar

V-R3x Technology from NASA's Ames Research Center Tested on a Raven Aerostar Balloon Flight – the First for NASA's New PACE Initiative

On March 12, 2021, researchers from NASA's Ames Research Center in collaboration with Stanford and Carnegie Mellon universities tested their V-R3x technology on a high-altitude balloon flight provided by Raven Aerostar. **V-R3x** is designed to support advanced communication and navigation among coordinated groups – or swarms – of CubeSats. The balloon flight, supported by Flight Opportunities, enabled researchers to evaluate these capabilities by forming a mesh network between multiple spacecraft and ground stations.

Recent Flights *(cont)*

The flight in Baltic, South Dakota was the first for NASA's Payload Accelerator for CubeSat Endeavors initiative, or PACE. This new effort is designed to aggressively shorten conventional technology testing timelines by linking [Flight Opportunities](#) and the [Small Spacecraft Technology](#) program to efficiently connect payloads to both suborbital and orbital flight tests. The goal: to increase the likelihood of a technology being selected for a space exploration mission.

PACE also facilitates collaboration among other NASA programs like the [CubeSat Launch Initiative](#) to pave the most efficient pathway through NASA's technology testing process.

Read NASA's [full web feature](#) for more information about the recent flight and the new PACE initiative.



Anh Nguyen, left, and Max Holliday of Stanford University, center, assemble a V-R3x ground unit in a lab at NASA's Ames Research Center in California's Silicon Valley. Credits: NASA / Dominic Hart

"The V-R3x flight campaign was a success and could not have been done without NASA's Space Technology Mission Directorate and the Flight Opportunities program. The insight, knowledge, commercial partnerships, and oversight that they provide are truly invaluable. The support our project received directly enabled a successful flight campaign, opening doors to many more exciting opportunities for our project and payload in the future."

*—Anh Nguyen, PACE project manager,
NASA's Ames Research Center*

News

NASA, Blue Origin to Bring Lunar Gravity Conditions Closer to Earth

NASA will soon have more options for evaluating the performance of technologies in lunar gravity thanks to a collaboration with Blue Origin to bring new testing capabilities to the company's New Shepard reusable suborbital rocket system – enabling the agency to test and de-risk innovations critical to achieving the goals of the [Artemis program](#), as well as lunar surface exploration and Moon-bound commercial applications.

Projected to be available in late 2022, New Shepard's upgrades will allow the vehicle to use its reaction control system to impart a rotation on the capsule. As a result, the entire capsule essentially acts as a large centrifuge to create artificial gravity environments for the payloads inside. Blue Origin's first flight of this capability will target 11 rotations per minute to provide more than two minutes of continuous lunar gravity, exposing the technologies to this challenging but difficult-to-test condition.

This new capability is made possible with the help of development funding and early purchase of payload space by NASA as part of its strategic investment in the U.S. spaceflight industry.

Read NASA's [full web feature](#) to learn more.

Community Learning

Make Plans to Attend our April Community of Practice Webinar

**Shared Experiences in Space:
Learning from Each Other in the Suborbital Flight Community**

**George Pantalos, Ph.D., University of Louisville
Robert Ferl, Ph.D., University of Florida**

Wednesday, April 7, 2021 at 10:00 a.m. PDT

When preparing for suborbital flight tests, connecting with and learning from the greater space community can help reduce risks related to technology development, experiment design, and flight integration, as well as lead researchers to future opportunities. In this session, experienced Flight Opportunities researchers Dr. George Pantalos and Dr. Robert Ferl will outline their own experience with building community relationships, share tips for getting the most out of these interactions, and discuss how their peers have helped improve their work. This webinar will be helpful for newcomers to Flight Opportunities hoping to lean on the community for support, as well as veteran investigators interested in both elevating their own research and sharing their experience with others.

Microsoft Teams Meeting:

[Click here to join the meeting](#)

Or call in (audio only) +1 256-715-9946; 528 075 684#

Community of Practice webinars take place the first Wednesday of every month at 10 a.m. PT. To learn more about this initiative and to view the recordings of previous webinars, please visit the [Community of Practice](#) page on our website.

Spotlight

Flight Provider Stratodynamics Spotlited for Licensing NASA Technology

In a recent NASA [Spinoff article](#), commercial flight provider Stratodynamics of Lewes, Delaware is spotlighted for its licensing of an infrasonic microphone sensor package developed by NASA's Langley Research Center in Hampton, Virginia. The technology is currently in pre-flight testing aboard the company's HiDRON stratospheric glider, with a culminating flight campaign slated for April, 2021. The sensor will be cross validated with a wind probe from the University of Kentucky, which received

support from Flight Opportunities as part of the program's Tech Flights solicitation in 2019. Together, the two instruments are designed to aid **forward-sensing turbulence detection** for unmanned aerial vehicles, commercial aircraft, the urban air mobility market, and the on-demand drone delivery sector. The upcoming flight will be the first for the company in support of a Flight Opportunities-supported payload.

Opportunities

Recently Announced

CASIS Releases Two ISS National Lab Research Announcements for In-Space Production Applications

The Center for the Advancement of Science in Space (CASIS), manager of the International Space Station U.S. National Laboratory, has released **two research announcements** soliciting proposals for in-space production applications that would utilize the space-based environment of the orbiting laboratory. The focus areas are:

- **Advanced Manufacturing and Materials (NLRA 2021-5)**
- **Tissue Engineering and Biomanufacturing (NLRA 2021-6)**

Step one (concept summaries) are due by end of day **May 6, 2021**.

Step two (full proposals from those invited to submit) are due by end of day **June 22, 2021**.

Upcoming

Stay Tuned for the Tech Flights 2021 Solicitation

Specific timing for the release of the Tech Flights 2021 solicitation is still being determined, so please be sure to keep an eye on this newsletter and the **Flight Opportunities website** for information as it becomes available.

In preparation for the 2021 solicitation:

- **View the recording of our February Community of Practice webinar** for information about how to strengthen your Tech Flights proposal
- Read an **overview of the Tech Flights program** and eligibility criteria
- Learn more about the **technologies selected for Tech Flights awards in 2020**

Closing Soon

Technology Advancement and Applied Research on the International Space Station National Laboratory

Full proposals (by invitation) are due by end of day **April 26, 2021**.

Mark Your Calendars

- **Society of Photo-Optical Instrumentation Engineers (SPIE) Defense and Commercial Sensing Expo:** April 11-15, 2021
- **2021 Scientific Ballooning Technologies Workshop:** May 10-14, 2021

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Have ideas or feedback for the Flight Opportunities newsletter?

Drop us a line at:

NASA-FlightOpportunities@mail.nasa.gov

STAY CONNECTED:



NASA Flight Opportunities Program

(650) 604-5876 (Stephan Ord, Chief Technologist)

Flight Opportunities is part of NASA's Space Technology Mission Directorate.